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ABSTRACT

A study was conducted to determine the effect on perceived meaning of the way a photograph is reproduced and to discover whether there would be an interaction between the complexity of photographic subject matter and the complexity of reproduction method. Each of 160 college students in a sophomore-level American history course was given a packet containing the same four photographs, but the subject matter varied as to complexity. Forty of the students saw the four photographs reproduced in a 133-line halftone screen: 40 saw them in a mezzotint halftone screen: 40 saw them in a steel engraving halftone screen: and 40 saw them in a tone-line conversion. Subjects were asked to rate each of the photographs with respect to 14 different characteristics, to rank-order the photographs according to preference, to describe the photographs in their own words, and to indicate their degree of liking for each photograph. Analysis of the results indicated that perceptions of photographs of subjects of varying complexity and the degree of liking expressed for them were significantly different regardless of variation in their reproduction processes. However, it was noted that the method of reproduction had some influence on how exciting or active certain photographs were perceived to be. (The paper includes tables of data and the assessment instruments used in the study.) (GT)

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THE EDITOR'S MANIPULATION OF PHOTOGRAPHS:

An Experimental Study of

the Effect of Varying Reproduction Methods

by

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INTRODUCTION

Today's intense competition for readers in the mass marketplace has led to the re-design of many publications, use of more illustrations, and increasing reliance on strong graphic treatment of both illustrations and type. The junior author of this paper, who acts as managing editor for a national magazine for dental students, became interested in what might be happening to the message (photographic illustrations) when the medium (type of reproduction screen or technique) was selected for its arty, graphic qualities rather than for its clarity and straightforward value. The present study was designed to provide some empirical answers to this legitimate communication question.

Among the decisions confronting magazine editors when they elect to illustrate their publications with photographs are these: "What photographs shall I use, and what kind of reproduction will be most effective?" By kind of reproduction, we refer to either the type of halftone screen the editor requests of the printer or to the absence of a screen, reproducing the photograph as a tone-line shot in which the middle grays drop out. (The tone-line conversion is prepared by shooting one underexposed line negative and one overexposed line negative. The two negatives are put together, and a 30 percent tint screen is put behind the underexposed negative. It is the underexposed negative that prints gray in the final reproduction; the overexposed negative prints black.) Although newspaper editors have essentially the same options and may be under similar pressures to expand readership, the "magazine look" of an increasing

number of dailies has so far not included use of mezzotint, steel engraving, and other reproduction variations utilized by some magazine editors and art directors.

The argument for exercising graphic control over the photojournalist's output was expressed recently by Jan V. White in Folio magazine: "The editor's job is not to win friends (i.e., photographers) but to influence people (i.e., readers). That's why photos must be seen as raw material to be manipulated to the editor's purpose by the skills of the art director, so their latent story-enhancing capacities can be exposed."[1] (White apparently classifies editors as manipulators of opinion rather than as journalists.)

A search of the relevant research literature reveals that, although a reasonable amount of work has been done to learn what elements of the photographic message influence readership and meaning, apparently no published studies have investigated the possible influence of the reproduction screen pattern.

As indicated by the studies cited below, the "elements" of photographic messages are generally divided into content (subject matter) and stylistic (structural) components. The research we are reporting focuses on a structural component (the reproduction screen pattern) but includes subject matter varying in the degree of complexity.

In the early fifties, MacLean and Hazard demonstrated in the Badger Village study[2] that six underlying themes of subject matter (idolatry, social problems, picturesque, war, blood and violence, and spectator sports) explained most of the variations of reader interest in 51 news magazine photographs. All of the selected photos were reproduced by the then standard dot screen process.

Tannenbaum and Fosdick found that there was an effect of lighting angle on the judgment of photographed subjects[3] in 1960, and Williams[4] was able to demonstrate in 1971 that camera viewpoint and lighting contrast could produce different perceptions of the dominance of a photographic subject. In neither of these studies was there any attempt to vary the clarity or "graphic quality" of

the reproductions to which experimental subjects were exposed.

When Hazard[5] investigated the influence of format and composition on the perception of photographs, he also observed that the message content was the most significant variable.

Although textbooks in photography and pictorial composition generally recommend making and cropping pictures to make them simple rather than complex--presumably because the central idea will be easier to understand and thus will have more interest and impact--French found that older viewers preferred more complex illustrations.[6]

In the study we are reporting here, we were primarily interested in the effect on perceived meaning of how a photograph is reproduced, but we also wanted to find out if there would be an interaction between the complexity of subject matter and the complexity of reproduction method. That is to say, we expected that the more complex or detailed the photograph, the more straightforward and clear the reproduction should be in order for the photograph to be understood.

As most journalists are aware, photographic illustrations (all continuous-tone "art," in fact) must be translated into a pattern of dots or lines of varying size in order to be printable in newspapers or magazines and to properly reproduce the tonal variations of the original. The tonal variation is provided by a "halftone screen" (usually by the engraver or printer), and this screen is available in a wide variety of patterns, some of which considerably change the appearance of the original. For example, a mezzotint screen and a steel engraving screen can give a photo the appearance of an artist's rendition rather than the verisimilitude of the original camera record. And a tone-line or dropout treatment, by eliminating some or all middle tones, provides a high contrast, graphic effect. Such "arty" effects are frequently used (as White has urged) by magazine editors eager to stress the graphic quality or the aesthetic appearance of their publications without spending extra money for artist's illustrations. Presumably, these special effect treatments are resorted to when the photo content is of minimal significance

and complexity.

Since such screens provide less detail and clarity than in the standard, 133-line dot screen normally used in periodicals printed on good quality paper, the special-effect treatment would seem to interfere with the transmission of the main message, the illustration content or subject matter. It is likely, too, that the artistic variation of such treatment would change the connotative meaning of a photograph. It is this potential for communication interference which the authors explored in the present study. The following hypotheses, derived in part from studies cited above, were tested:

Hypotheses

1a. Perceptions of photographs containing different degrees of complexity will be significantly different regardless of the variation of reproduction of the photographs.

1b. The expressed preference (liking) for photographs of subjects of varying complexity will vary significantly regardless of variation in the reproduction of the photographs.

2a. Regardless of photo subject, differences in reproduction method will produce significant differences in how photographs are perceived.

2b. Regardless of photo subject, differences in reproduction method will produce significant differences in how well the photographs are liked.

3. Variations in the realism with which photographs are reproduced will differentially affect perceptions of subject matter having different degrees of complexity. (In simpler language, we expected a significant interaction between reproduction methods and subject matter.)

EXPERIMENTAL DESIGN

We designed a controlled experiment in which subjects (a sample of "magazine readers") were given the opportunity to respond to four different photographic subjects and to four different printed reproductions of these photos. The subject

matter was intentionally varied in complexity, but all photos were of people or scenes which would be appropriate for a dental trade or professional journal. Our "magazine readers" were students in an undergraduate American history class, and one of the photographs selected was a shot of a campus building with students approaching it via a cross-over bridge.

The four versions for each photo consisted of the following printing reproduction techniques in black ink on white, dull-coated magazine paper stock:

(1) 133-line halftone screen

(2) mezzotint halftone screen

(3) steel engraving halftone screen

(4) tone-line conversion.

Independent variables, therefore, included the four photographs, each reproduced in four printing reproduction versions--a total of 16 combinations. These reproduction techniques were selected from a wide range available because of their relative realism/abstraction. The 133-line halftone screen is closest in reproduction quality to the original, black-and-white photograph and so was considered to be the most realistic. The mezzotint screen was believed to be somewhat more abstract because the grainy screen pattern partially obscures some of the photo's detail. The steel engraving screen was even more abstract: The rough and irregular pattern created a reproduced photograph very different from the original. The tone-line conversion was considered most abstract because much detail was eliminated when the middle tones were dropped in the conversion. However, the high contrast, "line" effect did emphasize some photo elements.

We selected reproduction techniques on the basis of realism/abstraction because we believed that a highly abstract reproduction technique would interact more with highly complex photo subjects than it would with less complex subjects. We also felt that there would be less (or no) interaction between realistic reproduction techniques and photo subject complexity.

Several dependent variables were included in the study in order to derive

several kinds of information for analysis:

(1) Fourteen semantic differential scales were composed so that we could examine the dimensions of judgment used by our readers. Half of the scales were selected from past studies of photographic communication, but half were the result of a pretest in which we asked respondents to describe each original photograph by using adjectives to indicate what the photograph meant to them. (The semantic differential scales can be found in Appendix A, which includes the entire measuring instrument.)

(2) On a separate sheet, respondents were asked to rank-order the photographs (as reproduced) on a simple most-liked to least-liked scale.

(3) As a check on this most-liked/least-liked response, we asked subjects to rate each photo reproduction combination on a seven-point like-dislike scale.

(4) Lastly, we asked each respondent to describe in his/her own words "What is the most important idea you get from this photograph? What is the main thing going on in the picture?" We realized that it would be difficult to quantify these responses, but we wanted to be able to qualitatively verify what the various message versions meant to our "readers."

TESTING PROCEDURE

Packets of test materials were distributed on a random basis to 160 students in a sophomore-level American history course. In addition to a set of instructions, each packet contained the four different photograph subjects, all reproduced in one of the four printing reproduction versions (see above). Therefore 40 students saw the four photo subjects reproduced in the 133-line screen; 40 saw them in the mezzotint; 40 saw them in the steel engraving; and 40 in the tone-line conversion process. The packet also contained a set of the semantic differential scales for each of the four subject/reproduction technique combinations in the packet, as well as a sheet for each of the additional dependent variable responses described above. The order of the photo subjects was varied systematically in each packet

to avoid a possible order effect which might occur if all respondents consistently saw the same subject first, second, and so on.

ANAYLSIS AND RESULTS

Factor analysis was performed on the semantic differential judgments to determine the judgmental dimensions used to respond to the photographed subjects and to the printing reproduction techniques. Three factors emerged:

Factor I ("excitement/activity") included the following scales: fascinating-boring, fast-slow, important-trivial, hot-cold, and complex-simple. It accounted for 28% of the variance explained.

Factor II ("weight") included these scales: heavy-light, light-dark, and hard-soft. It accounted for 10% of the variance.

Factor III ("evaluative") included: candid-posed, clean-dirty, realistic-abstract, and calm-nervous. It accounted for 4% of the variance.

Two semantic differential scales did not load well on any factor (strong-weak and good-bad) so they were analyzed separately.

Analysis of variance (split plot design) was conducted for each factor (Figures 1, 2, and 3) and in all cases the main effect for photo subjects was significant, as we expected. The main effect for reproduction technique (the three halftone screens and the tone-line conversion) was marginally significant on the evaluative factor ($p=.055$), somewhat less on the "weight" factor ($p=.10$), and did not even approach statistical significance (i.e., at the .05 level) on the "excitement/activity" factor ($p=.678$).

However, when we calculated the interaction between photographic subject and reproduction technique, the variance approached statistical significance ($p=.078$) on the "excitement/activity" factor, indicating that the method of reproducing a photograph can somewhat influence how exciting or active certain photographs are perceived. A closer look at the data suggests that more complex photographic subjects are perceived as being less exciting and less active when reproduced by more abstract methods.

We also performed an analysis of variance on the like-dislike dimension and (Figure 4) found a strong interaction ($p=.039$) between photographic subject and reproduction technique. The photograph of three people (the least interesting subject, posed, lifeless, and rated as least complex) seems to be preferred when reproduced in a more complex screen version (steel engraving) while the most familiar subject matter (campus building) is well liked regardless of which of our four reproduction techniques is used. The other highly rated photograph (of the very complex, outdoor dental scene) is liked best in the 133-line or mezzotint versions (the two most realistic methods) but is rated less favorably in the more abstract steel engraving.

An analysis of variance was performed on the two semantic scales that were not included in the factor analysis. Significant F statistics ($p \leq .05$) were noted only for the outdoor dental scene--the most complex photograph. On the strong-weak dimension, the photograph of the outdoor dental scene was rated as least strong under the two abstract reproduction methods: steel engraving and tone-line conversion. (See Table 1). Similar results were found on the good-bad dimension; there was a definite effect of reproduction method on how "good" the photos were perceived to be. The steel engraving screen got the lowest mean score (closest to the "bad" end of the scale), while the very realistic 133-line screen got the highest rating (closest to the "good" end). (See Table 2.)

Figure 5 shows the effect of reproduction process on whether the photographs were ranked as "best liked." The figure clearly shows that the outdoor dental scene was ranked best by more "readers" under the two most realistic reproduction methods than under the two abstract methods. The building photograph, on the other hand, surprisingly showed a slight increase in number (of readers rating it "liked best") from the 133-line screen to the tone-line conversion. One explanation is that this was the only photograph that the respondents would have recognized: It is a university building directly across from the building in

which the respondents took the test. Perhaps the familiar photo subject was "best liked" simply because it was familiar.

Tables 3 through 6 show the effects of the reproduction methods on respondents' perceptions of the "message" or "main idea" they got from the four photographs. Consistent with previous findings, a significant X^2 was found only for the most complex photograph--the outdoor dental scene (See Table 6). Important findings from Table 6 include:

(1) The mezzotint (33.3%) and steel engraving (50.0%) screens accounted for 83.3% of the responses which said that the photograph's message was primarily one of clutter and confusion. Other adjectives used to describe it were "busyness," "chaos" and "bizarre."

(2) The steel engraving screen (31.5%) and the tone-line conversion (31.5%) accounted for 63% of the comments which said that the message was one of anxiety, suffering, cruelty, or unsanitary conditions.

(3) The tone-line version accounted for 57.9% of the respondents' comments which indicated that the photo reproduction was so vague that they couldn't tell what it was about. The steel engraving screen accounted for 21.1% of those who said that they couldn't tell what was in the photograph.

(4) Of the respondents who saw the 133-line screen version, 50% said that the photograph characterized helping and healing. Of those who saw the mezzotint screen version, 45% said that it characterized helping and healing, while 10% said that the photo characterized clutter and confusion. Of those who saw the tone-line version, 40% said that it characterized helping and healing, but 27.5% said that they couldn't tell what was happening.

Although Table 3's data were not found to be significant at the .05 level, there are two interesting findings:

(1) People who saw the photograph of three people in the 133-line screen version tended to see it as posed or as an advertisement (57.5%).

(2) People who saw the tone-line conversion tended to see the photograph of three people as important, professional, or medical (50%).

Summary of results (Hypotheses):

1a. Confirmed (Figures 1, 2, and 3).

1b. Confirmed (Figure 4).

2a. Partially confirmed (Figures 1, 2, and 3).

3a. Rejected (Figures 1, 2, and 3), on the basis of analyses of factor scores, although there was some support for this hypothesis on individual scale analyses.

DISCUSSION

The finding that very complex photograph subjects may be perceived as being less exciting and more negative under abstract reproduction techniques than under realistic ones should interest the editor who is trying to use "exciting" graphic techniques to improve the appearance of his/her publication. These abstract reproduction techniques may be useful in making more readers like photographs of very simple or even boring subjects, but the opposite is true for very complex subjects.

A look at the results from Table 6 gives us clues as to why this may be true: People who saw the outdoor dental scene reproduced in the steel engraving version perceived a more negative message than did people who saw other reproduction versions. Comments included: "I wouldn't trust them." "Clutter; busyness." "People working together in a chaotic state." "Operating room with much tension." The tone-line reproduction of the complex outdoor dental scene did not produce as many negative perceptions as the steel engraving version . . . probably because in the tone-line version a stenciled sign on a box in the foreground of the photograph became very legible. The sign read:

DENTAL HEALTH

INTERNATIONAL AID

Respondents who saw the outdoor dental scene in the 133-line screen version gave

the most positive comments: "Helping, concern." "I get a feeling of generosity, people helping each other." This is consistent with our finding that the steel engraving/outdoor dental scene combination was rated significantly more "bad" on the good-bad dimension than the same scene was under any other reproduction process.

Twice as many people saw the mezzotint and tone-line versions of the outdoor dental scene as typifying helping/healing as saw them typifying clutter/confusion or anxiety/suffering. But a large number of respondents who saw the tone-line version could not tell what was going on in the photograph because the reproduction was too vague.

The findings from Table 3 show that editors may be able to use tone-line conversions to add importance to an otherwise dull and lifeless photograph.

Part of the reasons for the differences in perception of the photographs under different reproduction conditions may be that some detail is obscured or eliminated under the steel engraving and mezzotint screens, while other detail comes through more clearly when reproduced by the 133-line screen. In the most complex photograph, a large number of people just couldn't tell what was going on then they saw the tone-line version. If detail is important, editors should think twice before trying to jazz up a complex photo subject with a special reproduction technique such as the steel engraving screen or the tone-line conversion.

This study should encourage editors to more carefully consider the connotative effects of using special reproduction processes in their publications. While some processes (like the tone-line conversion) can make a boring photograph be perceived as being more interesting, others (such as the steel engraving) might have negative connotations that are undesirable.

When considering graphic improvements for their publications, editors must

consider not just the "arty" effects, but also the ways in which the reproduction process changes the connotative meaning of the photograph.

Further, this research on the effects of still another "stylistic variation" on the perception of a photographic message adds to our knowledge of the potential influence which journalists have on the content of what they report and on the interpretation of that content by message receivers. The variants of photographic style and structure are many. Relatively few of these variants have been subjected to systematic study, and the authors hope that readers of this report will be challenged to isolate other variants and to investigate them.

FOOTNOTES

1. Jan V. White, "Graphic Idea Notebook: The Editorial Eye," in Folio, April, 1979 (p. 57).

2. Malcolm S. MacLean, Jr., and William R. Hazard, "Women's Interest in Pictures: The Badger Village Study," Journalism Quarterly 30:139-42 (Spring, 1953).

3. Percy H. Tannenbaum and James A. Fosdick, "The Effect of Lighting Angle on the Judgment of Photographed Subjects," Audio Visual Communication Review 8:253-262 (November-December 1960).

4. Michael J. Williams, "The Effectiveness of Stylistic Variations as Connotative Indices in Photographic Portraiture," unpublished M.A. thesis, University of Wisconsin-Madison, 1971.

5. William R. Hazard, "Responses to News Pictures: A Study in Perceptual Unity," Journalism Quarterly 37:515-524 (Autumn, 1960).

6. John E. French, "Children's Preferences for Pictures of Varied Complexity of Pictorial Pattern," The Elementary School Journal 53:90-95 (October 1952).

Table 1

Effect of reproduction process on how "strong" the outdoor dental scene was perceived by respondents.

Strong-weak dimension

Reproduction method	Mean score (7=strong, 1=weak)
133-line screen	5.68
mezzotint screen	5.50
steel engraving screen	4.43
tonal-line conversion	4.88

Analysis of variance

Source	df	SS	MS	F	probability
between groups (reproduction method)	3	39.819	13.273	5.190	.0019
Error	156	398.925	2.557		

Table 2

Effect of reproduction process on how "good" the outdoor rental scene was perceived by respondents.

Good-bad dimension

Reproduction method	Mean score (7=good, 1=bad)
133-line screen	5.03
mezzotint screen	4.75
steel engraving screen	3.80
tone-line conversion	4.68

Analysis of variance

Source	df	SS	MS	F	probability
between groups (reproduction method)	3	33.725	11.242	4.410	.0052
Error	156	397.650	2.549		

Table 3

Effect of reproduction method on the "message" or "main idea" perceived in the photograph of three people.

Reproduction Method	Response Categories				
Frequency	Posed/ Advertisement	Medicine/ Important	Dull/ Unimportant	N/A*	N
133-line	23	7	7	3	40
mezzotint	17	10	7	6	40
steel engr.	18	17	3	5	43
tone-line	10	20	5	5	40
	68	54	22	19	163

*No answer or miscellaneous, uncodable response

$X^2_{(9)} = 16.1252$. NS

Table 4

Effect of reproduction method on the "message" or "main idea" perceived in the photograph of the dentist and child.

Reproduction Method	Response Categories				
Frequency	Fear/ Apprehension	Help/Trust	Dental Procedure	N/A*	N
133-line	15	6	11	8	40
mezzotint	14	5	17	4	40
steel engr.	20	6	14	3	43
tone-line	15	11	8	6	40
	64	28	50	21	163

*No answer or miscellaneous, uncodable response.

$X^2_{(9)} = 10.8098$ NS

Table 5

Effect of reproduction method on the "message" or "main idea" perceived in the photograph of the building.

Response Categories

Reproduction Method: Frequencies	Familiar	School/ Learning	Relaxed/ Warm	Complex/ Architecture	N/A*	N
133-line	5	8	14	4	9	40
mezzotint	7	17	11	1	4	40
steel engr.	11	12	4	7	9	43
tone-line	9	13	7	5	6	40
	32	50	36	17	28	163

*No answer or miscellaneous, uncodable response.

$X^2_{(12)} = 18.9619$ NS

Table 6

Effect of reproduction method on the "message" or "main idea" perceived in the photograph of the outdoor dental scene.

Reproduction Method	Response Categories: Clutter/ Confusion	Helping/ Healing	Important/ Serious	Anxiety/ Suffering	Too vague to tell	N/A*	N / %
133-line	0 0% 0%	20 50.0% 32.3%	6 15.0% 25.0%	4 10.5% 21.2%	1 2.5% 5.3%	9 22.5% 24.4%	40 100%
mezzotint	4 10.0% 33.3%	18 45.0% 29.0%	4 10.0% 16.7%	3 7.5% 15.8%	3 7.5% 15.8%	8 20.0% 21.6%	40 100%
steel engr.	6 14.0% 50.0%	8 18.6% 12.9%	9 20.9% 37.5%	6 14.0% 31.5%	4 9.3% 21.1%	10 23.3% 27.0%	43 100%
:one-line	2 5.0% 16.7%	16 40.0% 25.8%	5 12.5% 20.8%	6 15.0% 31.5%	11 27.5% 57.9%	10 25.0% 27.0%	40 100%
	12 7.4% 100%	62 38.0% 100%	24 14.7% 100%	19 11.7% 100%	19 11.7% 100%	37 22.7% 100%	163

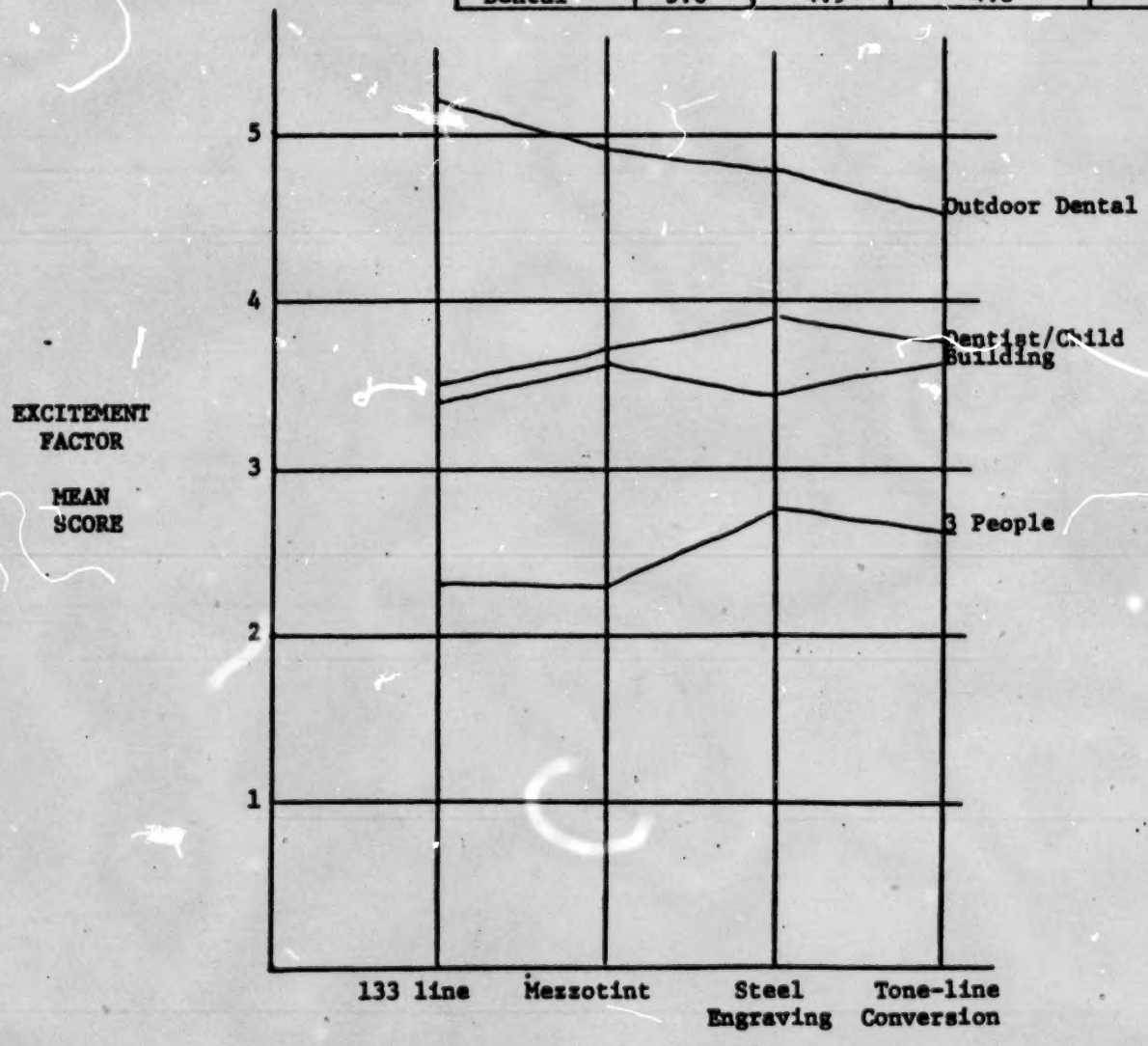
*No answer or miscellaneous, uncodable response.

$X^2_{(15)} = 26.2305$

$p < .05$

Figure 1. EFFECT OF REPRODUCTION PROCESS ON THE EXCITEMENT/ACTIVITY FACTOR.

Excitement Factor (Photo)	MEAN SCORE 133-line	Mezzotint	Steel Engraving	Tone-Line Conversion
3 People	2.3	2.4	2.8	2.5
Dentist/ Child	3.5	3.7	3.9	3.8
Building	3.4	3.6	3.5	3.6
Outdoor Dental	5.0	4.9	4.8	4.5

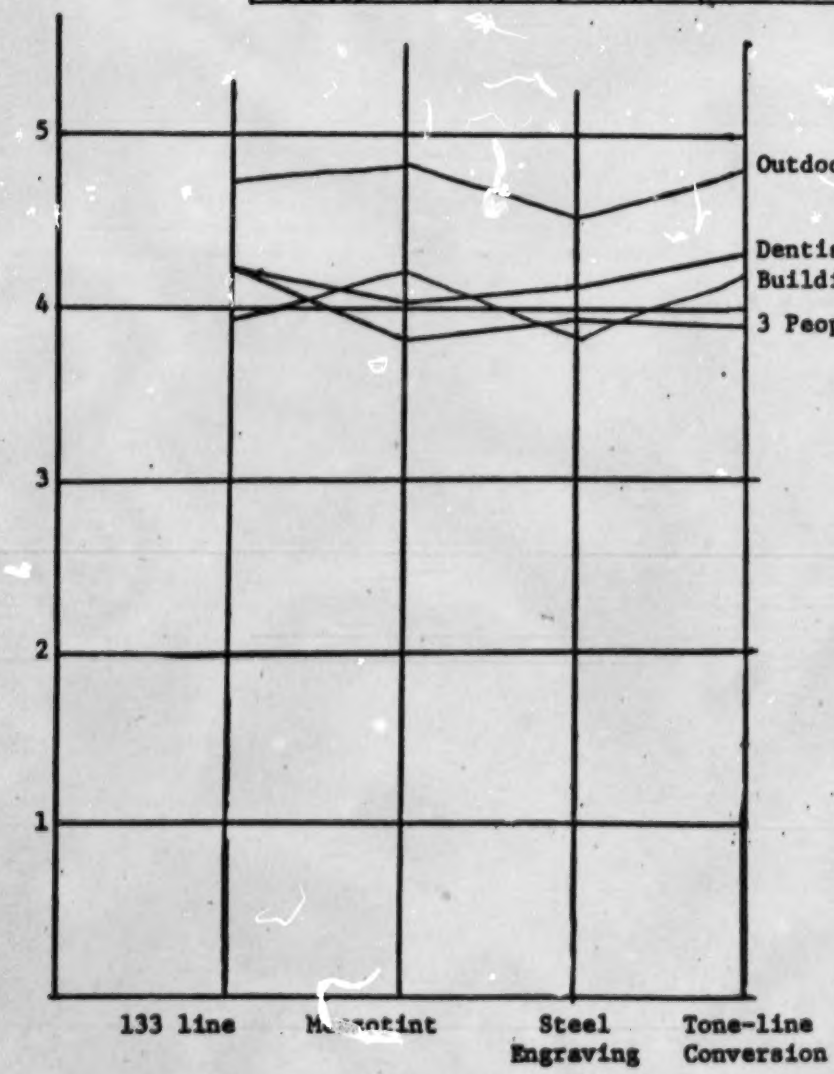


EXCITEMENT/ACTIVITY FACTOR

Analysis of Variance Source	df	SS	MS	F	Probability
Main effect-reproduction method	3	2.24	.75	.51	.678
Error	156	229.84	1.47		
Main effect-photo subject	3	434.57	144.86	181.33	.000
Interaction	9	12.48	1.39	1.74	.078
Error	468	373.88	.80		

Figure 2. EFFECT OF REPRODUCTION PROCESS ON THE WEIGHT FACTOR.

Weight Factor (Photo)	MEAN SCORE			
	133-line	Mezzotint	Steel Engraving	Tone-Line Conversion
3 People	4.2	3.8	3.9	3.9
Dentist/ Child	4.2	4.0	4.1	4.3
Building	3.9	4.2	3.8	4.2
Outdoor Dental	4.7	4.8	4.5	4.8

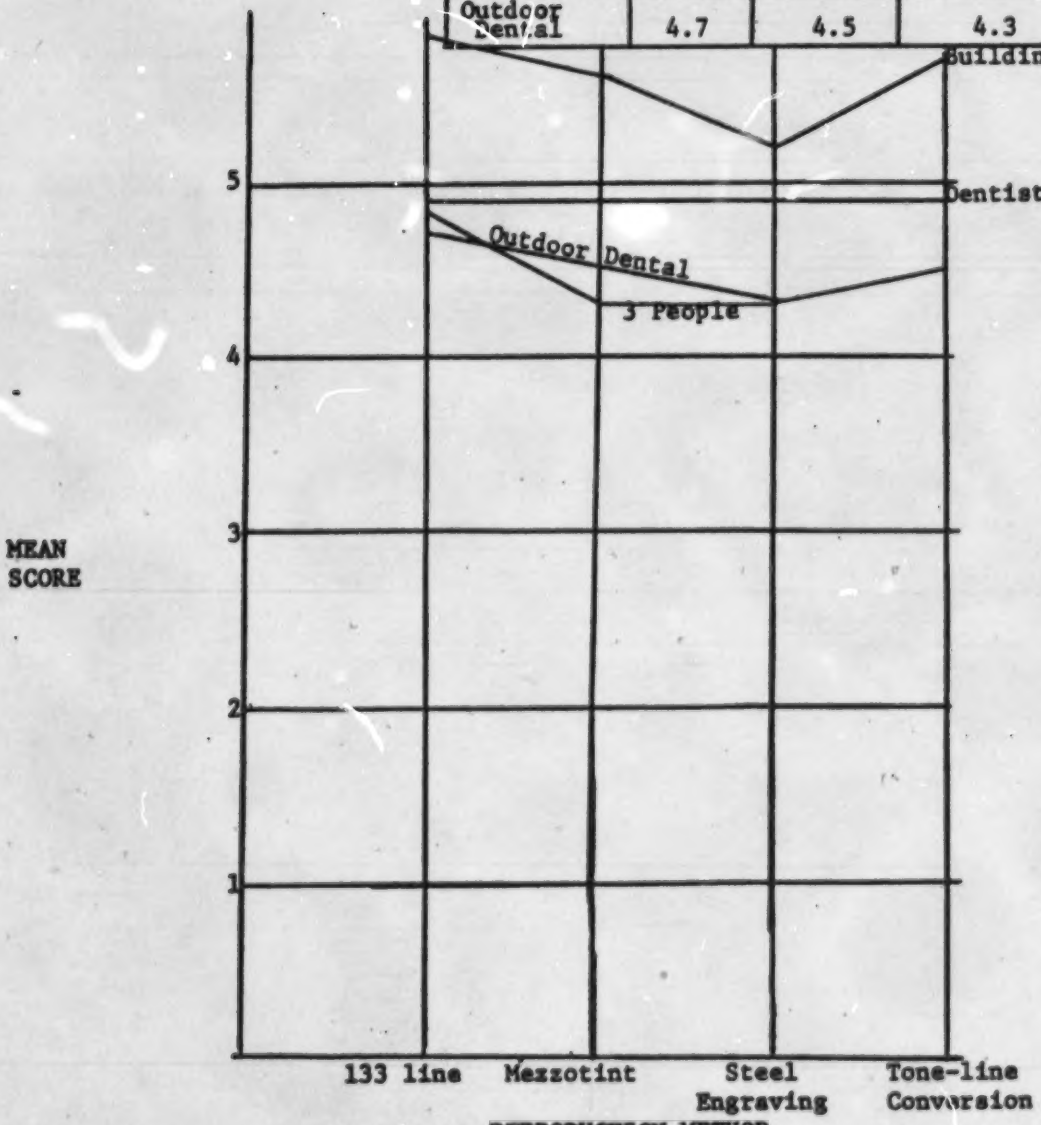


WEIGHT FACTOR

Analysis of variance Source	df	SS	MS	F	Probability
Main effect-reproduction method	3	4.33	1.44	2.12	.100
Error	156	106.14	.68		
Main effect-photo subject	3	50.20	16.73	28.97	.000
Interaction	9	6.37	.71	1.23	.277
Error	468	270.53	.58		

Figure 3. EFFECT OF REPRODUCTION PROCESS ON THE EVALUATIVE FACTOR

Evaluative Factor (Photo)	MEAN SCORE 133-line	Mezzocint	Steel Engraving	Tone-Line Conversion
3People	4.8	4.3	4.3	4.5
Dentist/ Child	4.9	4.9	4.9	4.9
Building	5.8	5.6	5.2	5.7
Outdoor Dental	4.7	4.5	4.3	4.5

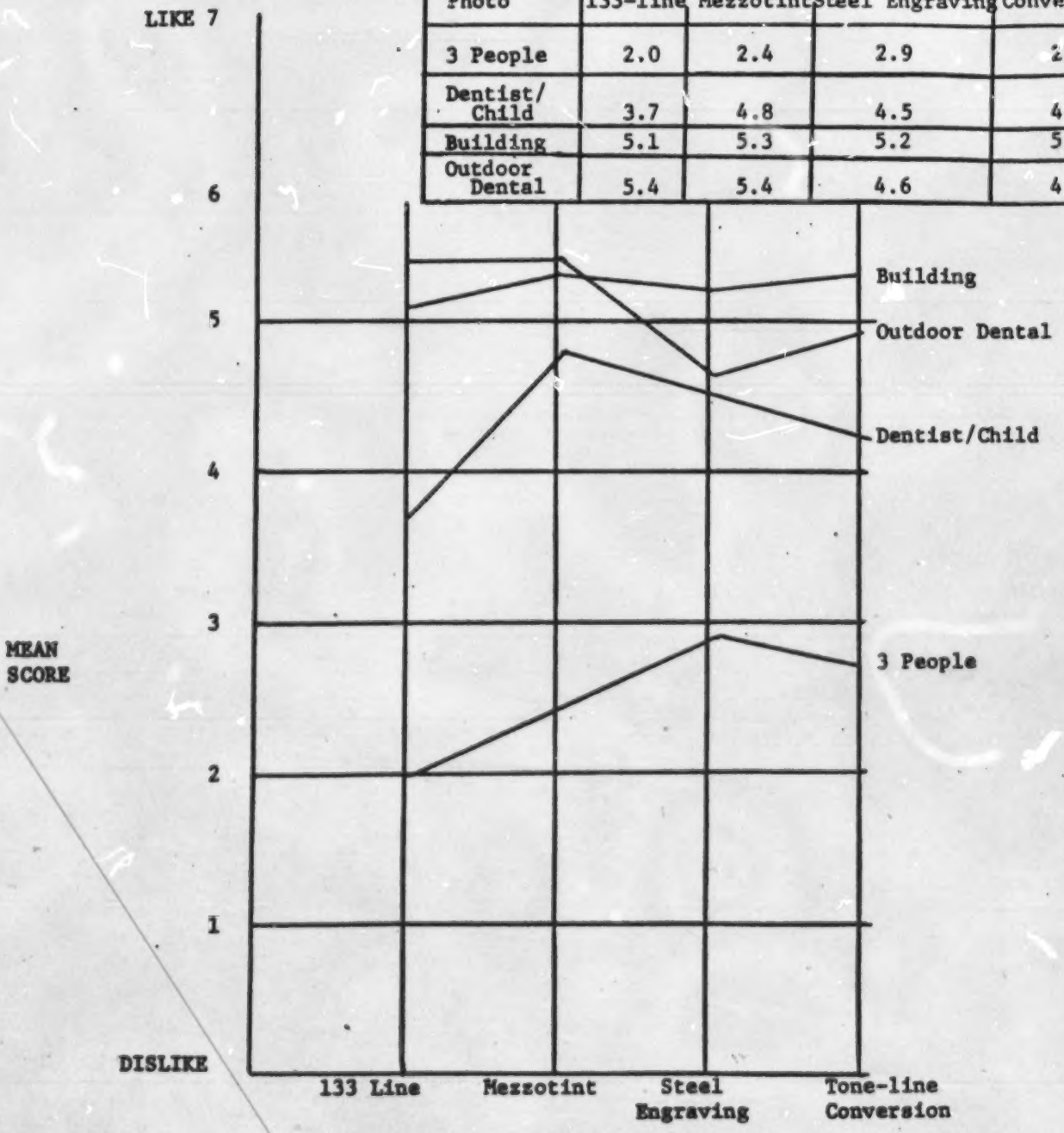


EVALUATIVE FACTOR

Analysis of Variance Source	df	SS	MS	F	Probability
Main effect-reproduction Method	3	7.05	2.35	2.59	.055
Error	156	141.61	.91		
Main effect-photo subject	3	135.55	45.18	89.02	.000
Interaction	9	4.98	.55	1.09	.369
Error	468	237.55	.51		

Figure 4. EFFECT OF REPRODUCTION PROCESS ON THE LIKE-DISLIKE DIMENSION.

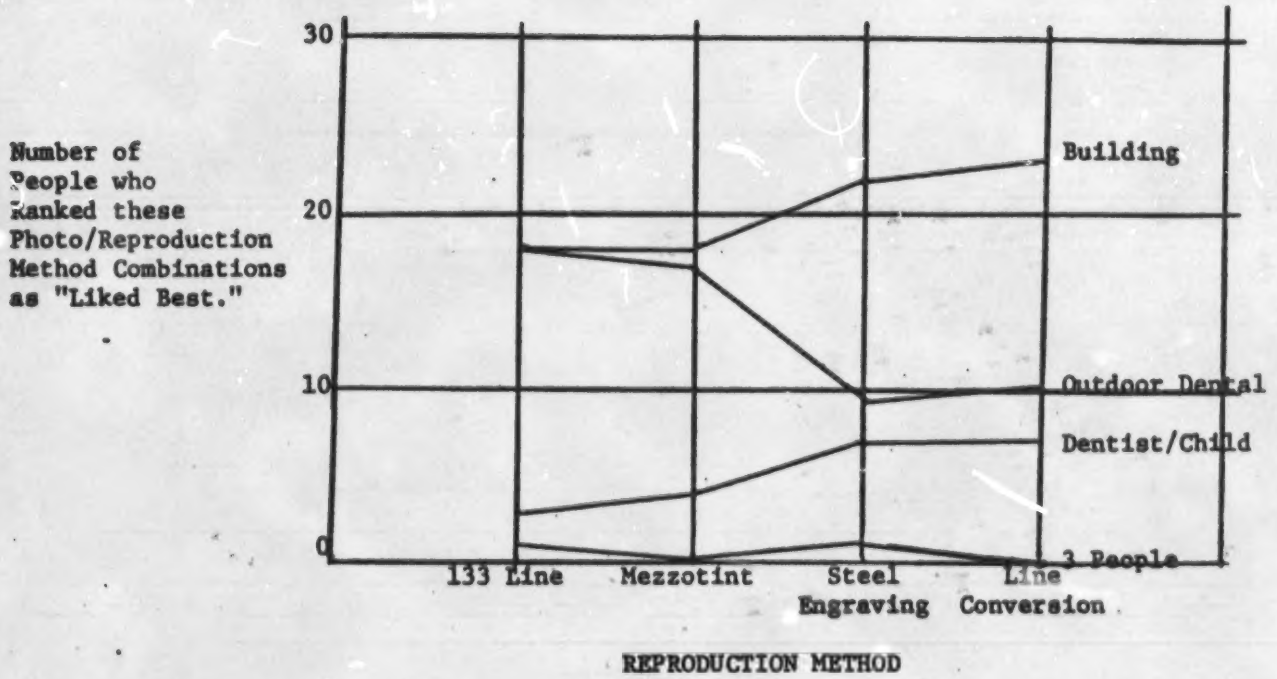
Photo	LIKE = 7 DISLIKE = 1 MEAN SCORE 133-line	Mezzotint	Steel Engraving	Tone-Line Conversion
3 People	2.0	2.4	2.9	2.7
Dentist/ Child	3.7	4.8	4.5	4.2
Building	5.1	5.3	5.2	5.3
Outdoor Dental	5.4	5.4	4.6	4.9



LIKE-DISLIKE DIMENSION

Analysis of Variance Source	df	SS	MS	F	Probability
Main effect-reproduction Method	3	10.93	3.64	.54	.654
Error	156	1047.31	6.71		
Main effect-photo subject	3	740.74	246.91	101.71	.000
Interaction	9	43.34	4.82	1.98	.039
Error	468	1136.17	2.43		

Figure 5. EFFECT OF PRINTING REPRODUCTION PROCESS ON RANKING OF FOUR PHOTO SUBJECTS AS "BEST LIKED."*



*Respondents saw four photo subjects reproduced by one method; therefore the "best liked" rating refers to a comparison of all four subjects in one reproduction method. Four groups of respondents were used to gather data for all reproduction methods.

PHOTOJOURNALISM RESEARCH PROJECT

INTRODUCTION

We want to find out how people feel about different kinds of subjects as shown in photographs. The photographs we will show you were taken from different publications, and we have reproduced them here just as they were printed in the publications.

PART I

Attached are four photographs and four sheets of adjective scales. The scales are composed of two adjectives with opposite meanings; one adjective is at the end of each scale, and there are seven spaces between.

Look at the first photograph in your stack of four. How would you rate it on the first scale?

Strong _____ / _____ / _____ / _____ / _____ / _____ / _____ Weak

extremely strong | very strong | somewhat strong | neither strong nor weak | somewhat weak | very weak | extremely weak

A mark in the far left space means that you think the photograph is extremely strong. A mark in the far right space means that you think the photograph is extremely weak. The intermediate spaces represent very strong (left) or very weak (right), somewhat strong (left) or somewhat weak (right), or neither strong nor weak (center space). You must mark one of the seven spaces; you cannot mark between two spaces.

Rate the first photograph in your stack on all 14 adjective scales. Then go on to the next photograph and rate it on all 14 scales. Do not look back to see how you marked the last photograph and do not look ahead at the next photograph. Rate each photograph separately and keep the photographs in the order in which they were presented to you.

You must also mark the photograph's code number on each rating sheet. The code number is in the upper right corner of the photograph.

When you have finished rating all four photographs, go on to Part II. Do not look at Part II before you complete Part I. Do not consult Part I while you complete Parts II and III.

Begin Part I.

[NOTE: FOUR OF THESE SHEETS WERE INCLUDED IN THE QUESTIONNAIRE.]

Photograph code # _____

Strong ____ / ____ / ____ / ____ / ____ / ____ / ____ Weak

Candid ____ / ____ / ____ / ____ / ____ / ____ / ____ Posed

Boring ____ / ____ / ____ / ____ / ____ / ____ / ____ Fascinating

Clean ____ / ____ / ____ / ____ / ____ / ____ / ____ Dirty

Slow ____ / ____ / ____ / ____ / ____ / ____ / ____ Fast

Important ____ / ____ / ____ / ____ / ____ / ____ / ____ Trivial

Heavy ____ / ____ / ____ / ____ / ____ / ____ / ____ Light

Abstract ____ / ____ / ____ / ____ / ____ / ____ / ____ Realistic

Cold ____ / ____ / ____ / ____ / ____ / ____ / ____ Hot

Simple ____ / ____ / ____ / ____ / ____ / ____ / ____ Complex

Dark ____ / ____ / ____ / ____ / ____ / ____ / ____ Light

Nervous ____ / ____ / ____ / ____ / ____ / ____ / ____ Calm

Soft ____ / ____ / ____ / ____ / ____ / ____ / ____ Hard

Bad ____ / ____ / ____ / ____ / ____ / ____ / ____ Good

PART II

Put aside the adjective scales. You may now change the order of the four photographs to arrange them according to your preference.

Put the photograph you like most on top; arrange the other three in order below it so that the photograph you like the least is on the bottom. Then record the results below.

Do not consult Parts I or III while you are arranging the photographs.

Photograph I like the most, code number _____

Photograph I like second best, code number _____

Photograph I like third best, code number _____

Photograph I like the least, code number _____

Go on to Part III.

PART III

Put the preference rating sheet aside, but keep the photographs in the same order. Look at the first photograph again. What is the most important idea you get from this photograph? What is the main thing going on in the picture?

Write the first photograph's code number in the space provided on the next sheet and record what you think is the most important idea you get from the photograph.

When you have completed the first photograph, do the same thing for the remaining three and continue to Part IV.

Photograph code # _____

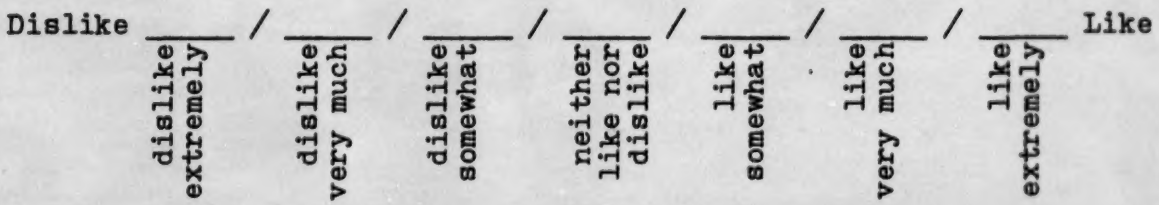
Photograph code # _____

Photograph code # _____

Photograph code # _____

PART IV

Now we need to know how much you like each photograph. Please rate each photograph on a 7-point scale like the one below. A mark in the far left space means that you extremely dislike the photograph, while a check in the far right space means that you extremely like it. A check in the center box means that you neither like nor dislike the photograph--that you are neutral toward it.



Keep the four photographs in the order they are in now. Record each photograph's code number and rate each one on the scales on the next page.

Photograph code number _____

Dislike ____ / ____ / ____ / ____ / ____ / ____ / ____ Like

Photograph code number _____

Dislike ____ / ____ / ____ / ____ / ____ / ____ / ____ Like

Photograph code number _____

Dislike ____ / ____ / ____ / ____ / ____ / ____ / ____ Like

Photograph code number _____

Dislike ____ / ____ / ____ / ____ / ____ / ____ / ____ Like

Your sex is _____ male _____female.

When you have finished this part, please turn in all of the research materials, including the four photographs. Many thanks for your help with the study.